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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,199	06/29/2007	Jochen Sang	102063.56904US	6506
23911 7590 01/29/2010 CROWELL & MORING LLP INTELLECTUAL PROPERTY GROUP P.O. BOX 14300 WASHINGTON, DC 20044-4300			EXAMINER SAHA, BIJAY S	
			ART UNIT 1793	PAPER NUMBER
			MAIL DATE 01/20/2010	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/589,199

**Applicant(s)**

SANG ET AL.

**Examiner**

BIJAY S. SAHA

**Art Unit**

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 November 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 13-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB-08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

***Election acknowledged***

Applicants' election **without** traverse of group I invention claims 1-12 in the reply filed on 11/19/2009 is acknowledged.

**DETAILED ACTION**

***Status of Application***

The claims 1-20 are pending and the elected claims 1-12 presented for the examination. The non-elected claims 13-20 are withdrawn from the consideration.

***Claim Rejections - 35 USC § 102 and 103***

***Claim Rejections - 35 USC § 102***

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hori et al EP 0456931 (EP'931).

Regarding claims 1 and 2, EP'931 discloses Coanda spiral flow device (Title), a suction intake (Fig 2 part #1), an outlet (Fig 2 part # 4), a fluid channel extending between the suction intake and the outlet (Fig 2), a drive flow inlet (Fig 2 part # 11), in fluid flow communication with the fluid channel (Fig 2), discharge slit (Fig 2 part #5), surrounded by larger bore (compared to outlet #4) surface (part # 6 Fig 2); by adjusting the threads via the coupling flanges (part # 3 and #9 Fig 2) the clearance of slit (part #5) is adjusted (col 3 lines 25-30).

Because the clearance of the slit can be set to a specified gap by the adjustment of the threaded fastenings, the flow cross section of the discharge slit is obviously variable adjustable.

Because of the threaded fastenings, it would be obvious that the gap of slit (part #5) can be closed by tightening the flanges (#3 and #9), thus a slit that can be completely closed.

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP'931 in view of McNair et al US 2856234 (US'234).

Regarding claims 1 and 2, EP'931 discloses Coanda spiral flow device (Title), a suction intake (Fig 2 part #1), an outlet (Fig 2 part # 4), a fluid channel extending between the suction intake and the outlet (Fig 2), a drive flow inlet (Fig 2 part # 11), in fluid flow communication with the fluid channel (Fig 2).

Although EP'931 discloses the discharge slit, and makes it adjustable by the threaded coupling flanges.

US'234 discloses liquid proportioning device (Title, examiner considers liquid to be a 'fluid'), a drive-flow discharge slit (Fig 3 part # 28'), a fluid conduit (Fig 3 part # 22), variably adjustable (Fig 3 part # 28, #26), can be completely closed (Fig 3 part # 28, #26).

At the time of invention it would have been obvious to a person of ordinary skill to assemble the Coanda device (EP'931 teaching) utilizing the variable adjusting slit means (US'234 teaching). The suggestion or motivation for doing so would have been to "[d]ispensing materials" with a "controlled mechanical admixture" (US'234).

Claims 3, 4, 5, 10, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP'931 in view of US'234 and Simon US 6739574 (US'574).

Regarding claims 3, 4, 5, 10, 11 and 12, teachings of EP'931 in view of US'234 have been delineated above in the rejection of claim 1.

Although EP'931 in view of US'234 disclose the suction and outlet of the Coanda device and the structure of the device, EP'931 in view of US'234 does not explicitly disclose the flow guiding element.

US'574 discloses a piezo electric valve (Title) for fluid valves (col 1 line 4), control fluid flow through an orifice (col 1 line 15, Figs 4 'on' and 'off'; examiner considers it to be the flow guiding element due to state of 'on' and 'off'), along a longitudinal axis (Fig 1), in a direction opposite to the fluid flow direction in the fluid channel ("transverse" direction col 2 line 19).

At the time of invention it would have been obvious to a person of ordinary skill to assemble the Coanda device (EP'931 teaching) utilizing the variable adjusting slit means (US'234 teaching) and the flow guiding element (US'234 teaching). The suggestion or motivation for doing so would have been to "[c]ontrol flow through an orifice"(US'234).

Regarding the claim limitation of first housing section and the upstream face, examiner considers that the piezoelectric device is attachable, per the US'234 disclosure, to any orifice where the fluid control is required. EP'931 discloses the suction and the discharge of the Coanda device. It would be obvious to a person of ordinary skill to attach the flow control piezoelectric device on the discharge of the Coanda device and form the additional housing the 3rd housing or even multiple housings.

Claims 6, 7, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP'931 in view of US'234 and US'574 and further in view of Davies US5433365 (US'365).

Regarding claims 6, 7, 8 and 9, teachings of over EP'931 in view of US'234 and US'574 have been delineated above.

Although EP'931 in view of US'234 and US'574 disclose the suction, exhaust and flow control housing, EP'931 in view of US'234 and US'574 does not disclose the sealing means and the housing attached to the sealing means.

US'365 discloses the fluid nozzle device (Title), sealing means (Fig 1A part # 118 'o' rings), distancing rings (Fig 1A, 1B and 1C part # 145, 149) and expansion space (Part # 13), sealing element is in the groove (part # 118), circumferential surface of the flow path (Fig 1A, 1B and 1C part # 145, 149).

At the time of invention it would have been obvious to a person of ordinary skill to assemble the Coanda device (EP'931 teaching) utilizing the variable adjusting slit means (US'234 teaching) and the flow guiding element (US'234 teaching) and utilizing the sealing means in a groove on the circumference (US'365). The suggestion or motivation for doing so would have been to reduce or eliminate the "[n]ozzle structure and nozzle operation"( US'365).



Regarding the claim limitation of the first, second and the third housing, examiner considers that EP'931 discloses the suction and the discharge. Based upon the teaching of EP'931 in view of US'234 and US'574 and further in view US'365, it would be obvious to a person of ordinary skill to attach the flow control piezoelectric device on the discharge of the Coanda device and form the additional housing the 3rd housing or even multiple housings with sealing means.

### ***Summary***

The claims 1-12 are rejected.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BIJAY S. SAHA whose telephone number is (571) 270-5781. The examiner can normally be reached on Monday- Friday 8:00 a.m. EST - 5:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Mayes can be reached on (571) 272 1234. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BIJAY S SAHA/  
Examiner, Art Unit 1793

BSS

January 17, 2010

/Melvin Curtis Mayes/  
Supervisory Patent Examiner, Art Unit 1793